b.) Remarks

Claim 1 has been amended (claim 1 does not encompass a production of cytidine 5'-monophospho-N-acetylneuraminic acid (CMP-sialic acid) so N-acetylneuraminic acid is deleted) in order to recite the present invention with the specificity required by statute.[1] No new matter is added.

Claims 1, 5, 15, 16, 18-20 and 72 are rejected under 35 U.S.C. §103(a) as being unpatentable over Akihiko (EP 0 553 821 A1 and Kuehn (*J. Bacteriol.*, Vol. 120(3):1151-1157, 1974). The Examiner's bases of rejection are set forth at pages 2-4 of the Office Action.

In support of the rejection, the Examiner asserts that since Akihiko teaches a microorganism that of converts orotic acid to UTP, it would have been obvious for greater efficiency to utilize Kuehn's slime mold to produce UDP-glucose pyrophosphorylase.

Respectfully submitted, this does not set out a prima facie case of obviousness. Akihiko does not disclose or relate to Kuehn's UDP-sugar or production process.

Additionally, Kuehn discloses only that UDP-glucose pyrophosphorylase is produced in cells of *P. polycephalum* by measuring such activity using an enzyme source of disrupted *P. polycephalum* cells with labeled glucose-1-phosphate substrate (see page 1152, "Preparation of extracts" and "Assays").

That is to say, Kuehn does not disclose UDP-glucose production using glucose as direct substrate.

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[1] The term "culture broth" is replaced with "culture". Previously Applicants intended "culture broth" to represent a solution containing a microorganism (see original claim 4). However, conventional usage provides culture broth as the solution used for culturing microorganisms.

In contrast claim 1 recites producing GDP[2] and UDP-sugar using, as enzyme source (b), a treated product of the culture and not disrupted cells or a crude enzyme extract of disrupted cells as well as the use as a substrate, a sugar such as glucose per se.

Accordingly, even if Akihiko and Kuehn were combined, all that is obtained is a process of producing UDP or GDP-sugar using, as substrates, UTP or GTP and a substance (such as glucose-1-phosphate) which is directly converted into a sugar nucleotide with a crude enzyme solution having the necessary conversion activity. No combination of the references results in the process of claim 1 in which

- UDP or GDP-sugar is produced from a sugar that is not directly converted into a sugar nucleotide substrate, or in which
- UTP or GTP is produced by using, as an enzyme source, a culture or treated product of a microorganism capable of producing GTP or UTP from a sugar nucleotide, or in which
- UDP or GDP-sugar is produced by using, as an enzyme source, a culture of a microorganism capable of producing UDP or GDP-sugar from the sugar and the UTP or GTP.

Claims 1, 5, 15, 16, 18-20 and 72 remain presented for continued prosecution.

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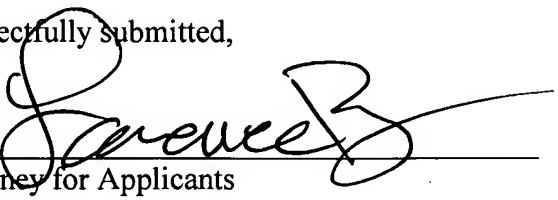
[2] A concentrated product of the culture, a dried product of the culture, a culture supernatant obtained by centrifuging the culture, cells obtained by centrifuging the culture, a dried product of the cells, a freeze-dried product of the cells, a surfactant-treated product of the cells, a solvent-treated product of the cells, and an immobilized product of the cells which have the form of cells.

Applicants undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,



Attorney for Applicants
Lawrence S. Perry
Reg. No. 31,865

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200
LSP/ac

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